

LISTING OF CLAIMS

This listing of claims replaces all prior versions and listings of claims in the patent application.

Claims 1-18 (cancelled)

Claim 19 (previously presented): An optical module comprising:

optical fibers having protruding portions and tips;

an optical connector section, for connecting to an outside optical connector, said optical connector section having inserted there into and securing said optical fibers;

optical elements, each of which comprises one of a light-emitting face and a light-receiving face;

a mount on which are mounted said optical elements; and

a package comprising a positioning structure comprising walls;

wherein said package accommodates said mount and fixes said optical connector section,

wherein said optical fibers protrude to the inside of said package,

wherein said walls of said positioning structure directly contact side faces of said mount,

wherein each of said tips of said optical fibers being arranged so as to oppose one of said light-emitting face of said optical elements and said light-receiving face of said optical elements,
and

wherein said positioning structure positions said mount supporting said optical elements at a predetermined position so that said light-emitting face or said light-receiving face of said optical elements opposes at least one of said tips of said optical fibers.

Claim 20 (previously presented): The optical module, according to Claim 19, further comprising a positioning stand having positioning grooves for positioning said protruding portions of said optical fibers, said positioning stand molded together with said positioning structure.

Claim 21 (previously presented): The optical module according to Claim 19, wherein said optical connector section comprises a ferrule provided separately from said package.

Claim 22 (previously presented): The optical module according to Claim 19, wherein said positioning structure comprises protrusions for positioning which protrude inwardly from inner walls of said package.

Claim 23 (previously presented): The optical module according to Claim 20, wherein said positioning structure comprises a side face of said positioning stand provided so as to touch a side face of said mount and thereby position said mount.

Claim 24 (previously presented): The optical module according to Claim 19,

wherein said mount further comprises electrodes, said electrodes extending from one face of said mount, at which said optical elements are attached, to an adjacent face of said mount, and

wherein said mount is disposed in said package, said package further comprising a lead terminal disposed therein, so that said adjacent face of said mount directly contacts said lead terminal so as to form an electrical connection.

Claim 25 (previously presented): An optical module comprising:

optical fibers having protruding portions and tips;

an optical connector section, for connecting to an outside optical connector, said optical connector section having inserted there into and securing said optical fibers;

a light-emitting element having a light-emitting face;

a light-receiving element having a light-receiving face;

two mounts on which are mounted said light-emitting element and said light-receiving element, respectively; and

a package comprising a positioning structure comprising walls;

wherein said package accommodates said mounts and fixes said optical connector section,

wherein said optical fibers protrude to the inside of said package,

wherein said walls of said positioning structure directly contact side faces of said mounts,

wherein each of said tips of said optical fibers being arranged so as to oppose one of said light-emitting face of said optical elements and a light-receiving face of said optical elements,

wherein said positioning structure positions said mounts at predetermined positions so that said light-emitting face or said light-receiving face opposes at least one of said tips of said optical fibers, and

wherein the positions of said two mounts differ in the longitudinal direction of said optical fibers.

Claim 26 (previously presented): The optical module, according to Claim 19, further comprising a package side wall section having a join end face for facing said outside optical connector;

a positioning stand having positioning grooves for positioning said protruding portions of said optical fibers, said positioning stand extending from a point separated from said optical elements to said join end face of said package side wall section; and

a pressing member accommodated in said package side wall section,

wherein said optical fibers are pressed by said pressing member so as to be positioned with respect to said optical elements, and so as to be positioned such that said optical fibers are butt-connected to optical fibers of said outside optical connector at said join end face.

Claim 27 (previously presented): The optical module according to Claim 26, wherein said package side wall section comprises a groove which passes through said package side wall section, said pressing member positioned by inserting into said groove.

Claim 28 (previously presented): The optical module according to Claim 26, wherein said pressing member comprises a meshing section meshing with said package side wall section, thereby restricting positional deviation of said pressing member in the longitudinal direction of said positioning grooves.

Claim 29 (previously presented): The optical module, according to Claim 19, further comprising a package side wall section for facing said outside optical connector,

wherein said outside optical connector comprises fitting pins for positioning said outside optical connector,

wherein said package side wall section comprises fitting pin holes and optical fiber insertion holes, said fitting pin holes and optical fiber insertion holes provided in parallel to each other, said fitting pins inserted into said fitting pin holes, said fitting pins connecting said package side wall section and said outside optical connector, and said optical fibers, coupled to said optical elements, inserted into said optical fiber insertion holes.

Claim 30 (previously presented): The optical module according to Claim 29, wherein said optical fiber insertion holes comprise tapered optical fiber insertion openings, at the ends of said optical fiber insertion holes, disposed in an outside surface of said package side wall section.

Claim 31 (previously presented): The optical module according to Claim 19, wherein said optical elements comprise a light-emitting element and a light-receiving element, and wherein

said light-emitting element and said light-receiving element are each sealed by a light-permeable material, and at least one of said light-emitting element and said light-receiving element is further sealed by a light-absorbing material provided outside said light-permeable material.

Claim 32 (previously presented): The optical module according to Claim 31, wherein said light-absorbing material comprises an organic polymeric material which absorbs scattered light from said light-emitting element.

Claim 33 (previously presented): An optical element attachment method for attaching said optical elements in said package in the optical module according to Claim 19, wherein said mount comprises electrodes, said electrodes extending from one face of said mount to an adjacent face of said mount, and said package further comprises a lead terminal disposed therein, the method comprising:

attaching said optical elements to said one face of said mount; and

disposing said mount in said package in such a manner that said adjacent face of said mount directly contacts said lead terminal so as to form an electrical connection.

Claim 34 (previously presented): A receptacle-fitted optical module in which a receptacle, into which an optical connector having optical fibers is inserted, and the optical module according to Claim 19 are arranged facing each other, said optical fibers of said optical connector being butt-aligned and optically connected to said optical fibers of the optical module,

wherein protrusions are provided in a side face or a bottom face of the optical module,

wherein grooves are provided in said receptacle for engaging said protrusions, and

wherein said protrusions of the optical module are engaged by the grooves of said receptacle, and the optical module is secured to said receptacle by a securing member.

Claim 35 (previously presented): The receptacle-fitted optical module according to Claim 34, wherein said securing member presses the optical module, and is secured to said receptacle using an adhesive.

Claim 36 (previously presented): The receptacle-fitted optical module according to Claim 34, wherein said securing member comprises a pressing member having elasticity and being substantially C-shaped in cross-section; fitting concavities for engaging said pressing member are formed in said receptacle, said pressing member engaging said fitting concavities, the optical module being urged by the elasticity of said pressing member.

Claim 37 (previously presented): The optical module according to Claim 19, wherein at least one of said walls is formed so as to position said mount in the longitudinal direction of said optical fibers, and at least one of said walls is formed so as to position said mount in the direction at a right angle to the longitudinal direction of the optical fibers.

Claim 38 (previously presented): An optical module comprising:

- optical fibers having protruding portions and tips;
- an optical connector section, for connecting to an outside optical connector, said optical connector section having inserted there into and securing said optical fibers;
- optical elements, each of which comprises one of a light-emitting face and a light-receiving face; and
- a package comprising a positioning structure comprising walls;

wherein said package accommodates said optical elements and fixes said optical connector section,

wherein said optical fibers protrude to the inside of said package,

wherein said walls of said positioning structure directly contact side faces of said optical elements,

wherein each of said tips of said optical fibers being arranged so as to oppose one of said light-emitting face of said optical elements and said light-receiving face of said optical elements, and

wherein said positioning structure positions said optical elements at predetermined positions so that said light-emitting face or said light-receiving face of said optical elements opposes at least one of said tips of said optical fibers.